WE CLAIM:

-1-

A vaccine for providing passive immunity to *Sarcocystis neurona* infection comprising antibodies which are against at least one epitope of a unique 16 (±4) or 30 (±4) antigen of *Sarcocystis neurona*.

-2-

The vaccine of Claim 1 wherein the antibodies are selected from the group consisting of polyclonal antibodies and monoclonal antibodies.

-3-

The vaccine of claim 1 wherein the vaccine is provided in a pharmaceutically accepted carrier.

-4-

A vaccine for active immunization of an equid against a *Sarcocystis neurona* infection comprising at least one epitope of a unique 16 (±4) or 30 (±4) antigen of *Sarcocystis neurona*.

-5-

The vaccine of Claim 4 wherein the antigen is a recombinant polypeptide produced in a plasmid in a microorganism other than *Sarcocystis neurona*.

-6-

The vaccine of Claim 5 wherein the microorganism is an *E. coli*.

-7-

The vaccine of Claim 6 wherein the antigen is a fusion polypeptide wherein an amino end or a carboxyl end of the antigen is fused to all or a portion of a polypeptide that facilitates isolation of the antigen from the microorganism in which the antigen is produced.

-8-

The vaccine of Claim 7 wherein the polypeptide is selected from the group consisting of glutathione S-transferase, protein A, maltose binding protein, and polyhistidine.

-9-

The vaccine of Claim 6 wherein the vaccine is provided in a pharmaceutically accepted carrier.

-10-

A vaccine for protecting an equid from a *Sarcocystis neurona* infection comprising a DNA that encodes at least one epitope of a 16 (±4) kDa antigen and/or 30 (±4) kDa antigen of *Sarcocystis neurona*.

-11-

The vaccine of Claim 10 wherein the DNA is operably linked to a promoter to enable transcription of the DNA in a cell of an equid.

-12-

The vaccine of Claim 10 wherein the vaccine is provided in a pharmaceutically accepted carrier.

-13-

A method for vaccinating an equid against a *Sarcocystis neurona* infection comprising:

(a) providing a recombinant antigen of *Sarcocystis neurona* produced from a microorganism culture wherein the microorganism contains a DNA that encodes at least one epitope of a 16 (±4) kDa antigen and/or 30 (±4) kDa antigen of *Sarcocystis neurona*; and

(b) vaccinating the equid.

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The method of Claim 13 wherein the recombinant antigen is in a pharmaceutically accepted carrier.

-15-

The method of Claim 13 wherein the recombinant antigen is a fusion polypeptide which is fused at the amino terminus or carboxyl terminus to a polypeptide that facilitates the isolation of the recombinant antigen.

-16-

The method of Claim 15 wherein the polypeptide includes all or a portion of the polypeptide selected from the group consisting of glutathione S-transferase, protein A, maltose binding protein, and polyhistidine.

-17-

The method of Claim 15 wherein the DNA is in a plasmid in a microorganism wherein the DNA is operably linked to a promoter which enables transcription of the DNA to produce the recombinant antigen for the vaccine.

-18-

A method for vaccinating an equid against a *Sarcocystis neurona* infection comprising:

(a) providing in a carrier solution a DNA in a plasmid which encodes at least one epitope of a 16 (±4) kDa antigen and/or 30 (±4) kDa antigen of *Sarcocystis neurona*; and

(b) vaccinating the equid with the DNA in the carrier solution.

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The method of Claim 18 wherein the carrier solution is a saline solution.

-20-

The method of Claim 18 wherein the DNA is operably linked to a promoter to enable transcription of the DNA in a cell of the equid.

-21-

A method for providing passive immunity to a *Sarcocystis neurona* infection in an equid comprising:

(a) providing antibodies against at least one epitope of a 16 (±4) kDa antigen and/or 30 (±4) kDa antigen of *Sarcocystis neurona* wherein the antibodies are selected from the group consisting of polyclonal antibodies and monoclonal antibodies; and

(b) inoculating the equid.

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The method of Claim 21 wherein the antibodies are provided in a pharmaceutically accepted carrier.

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-23-

A method for producing a polypeptide comprising:

(a) providing a microorganism in a culture containing a DNA encoding a fusion polypeptide comprising at least one epitope of a 16 (±4) kDa antigen and/or 30 (±4) kDa antigen of *Sarcocystis neurona* and a polypeptide that facilitates isolation of the fusion polypeptide;

(b) culturing the microorganism in a culture to produce the fusion polypeptide; and

(c) isolating the fusion polypeptide.

-24-

The method of Claim 23 wherein isolating the fusion polypeptide is by affinity chromatography.

-25-

The method of Claim 24 wherein the polypeptide is all or a portion of protein A and the affinity chromatography comprises an IgG-linked resin.

-26-

The method of Claim 24 wherein the polypeptide is polyhistidine and the affinity chromatography comprises a Ni^{2+} resin.

-27-

The method of Claim 24 wherein the polypeptide is glutathione S-transferase and the affinity chromatography comprises a glutathione Sepharose 4B resin.

-28-

The method of Claim 24 wherein the polypeptide is maltose binding protein and the affinity chromatography comprises an amylose resin.

-29-

A method for producing an antibody comprising:

(a) providing a microorganism in a culture containing a DNA encoding a fusion polypeptide comprising at least one epitope of a 16 (±4) kDa antigen and/or 30 (±4) kDa antigen of *Sarcocystis neurona* and a polypeptide that facilitates isolation of the fusion polypeptide;

(b) culturing the microorganism in a culture to produce the fusion polypeptide;

(c) isolating the fusion polypeptide;

(d) producing the antibody from the polypeptide.

-30-

A method for producing a monoclonal antibody comprising:

(a) providing a microorganism in a culture containing a DNA encoding a fusion polypeptide comprising at least one epitope of a 16 (±4) kDa antigen and/or 30 (±4) kDa antigen of *Sarcocystis neurona* and a polypeptide that facilitates isolation of the fusion polypeptide;

(b) culturing the microorganism in a culture to produce the fusion polypeptide;

(c) isolating the fusion polypeptide;

(d) producing the monoclonal antibody from the polypeptide.

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The method of Claim 29 or 30 wherein isolating the fusion polypeptide is by affinity chromatography.

-32-

The method of Claim 31 wherein the polypeptide is all or a portion of protein A and the affinity chromatography comprises an IgG-linked resin.

-33-

The method of Claim 31 wherein the polypeptide is polyhistidine and the affinity chromatography comprises a Ni^{2+} resin.

-34-

The method of Claim 31 wherein the polypeptide is glutathione S-transferase and the affinity chromatography comprises a glutathione Sepharose 4B resin.

-35-

The method of Claim 31 wherein the polypeptide is maltose binding protein and the affinity chromatography comprises an amylose resin.

-36-

A monoclonal antibody that selectively binds to a 16 (±4) kDa antigen and/or 30 (±4) kDa antigen of *Sarcocystis neurona*.

-37-

An isolated recombinant protein encoded by a cDNA produced from RNA of *Sarcocystis neurona* encoding a 16 (±4) kDa antigen and/or 30 (±4) kDa antigen.

-38-

An isolated DNA that encodes a 16 (±4) kDa antigen and/or 30 (±4) kDa antigen of *Sarcocystis neurona*.

-39-

A bacterial clone containing a plasmid comprising a DNA encoding a 16 (±4) kDa antigen and/or 30 (±4) kDa antigen of *Sarcocystis neurona*.

-40-

The bacterial clone of Claim 39 wherein the clone expresses the 16 (±4) kDa antigen and/or 30 (±4) kDa antigen of *Sarcocystis neurona*.

-41-

A vaccine for an equid comprising an isolated recombinant protein encoded by a cDNA produced from mRNA of *Sarcocystis neurona* encoding a protein which is a 16 (±4) kDa antigen and/or 30 (±4) kDa antigen, and a vaccine carrier.

-42-

A vaccine for an equid comprising a recombinant virus vector containing DNA encoding a 16 (±4) kDa antigen and/or 30 (±4) kDa antigen of *Sarcocystis neurona*, and a vaccine carrier.

-43-

The vaccine of Claim 42 wherein the recombinant virus is selected from the group consisting of equid herpesvirus, vaccinia virus, canary poxvirus, raccoon poxvirus, and adenovirus.

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-44-

A DNA vaccine for an equid comprising a plasmid containing DNA encoding a 16 (±4) and/or 30 (±4) kDa protein of *Sarcocystis neurona*.

-45-

A method for protecting an equid against *Sarcocystis neurona* which comprises providing a vaccine that when injected into the equid causes the equid to produce antibodies against a 16 (±4) kDa antigen and/or 30 (±4) kDa antigen of the *Sarcocystis neurona* wherein the antibodies prevent infection by the *Sarcocystis neurona*.

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The method of Claim 45 wherein the vaccine comprises the 16 (±4) kDa antigen and/or 30 (±4) kDa antigen in a vaccine carrier.

-47-

The method of Claim 45 wherein the vaccine is a recombinant virus vector that expresses the 16 (±4) kDa antigen and/or 30 (±4) kDa antigen.

-48-

The method of Claim 47 wherein the recombinant virus vector is selected from the group consisting of equine herpesvirus, vaccinia virus, canary poxvirus, raccoon poxvirus, and adenovirus.

-49-

The method of Claim 45 wherein the vaccine comprises a DNA plasmid encoding the 16 (±4) kDa antigen and/or 30 (±4) kDa antigen.

The method of Claim 45 wherein the vaccine is administered by a vaccination route selected from the group consisting of intranasal administration, intramuscular injection, intraperitoneal injection, intradermal injection, and subcutaneous injection.